

CLAIMS

1. A mixture injection port in which one end of a channel tube is covered by a septum provided with a slit into which a tube member is inserted,
5 wherein the channel tube is provided with a circulating portion for circulating a fluid injected from the inserted tube member or a fluid flowing to the tube member side to the septum side and then guiding the fluid to a downstream side of the channel tube or a top portion of the tube member.
- 10 2. The mixture injection port according to claim 1,
 wherein the channel tube comprises:
 a body portion whose opening is covered by the septum and that is provided with an inner cavity that is a space for accommodating the septum that is deformed by the insertion of the tube member, and a leg portion that
15 is provided with a narrow tube portion having a smaller width than that of the inner cavity and that is in communication from the inner cavity to the other end of the channel tube, and
 the circulating portion has a circulating-plate portion that is mounted on a step generated between the inner cavity and the narrow tube
20 portion.
3. The mixture injection port according to claim 2,
 wherein a groove extending in a direction different from a direction from which a fluid is injected from a position with which the top of the
25 inserted tube member is in contact or a position near the top is formed on a surface on the inner cavity side of the circulating-plate portion, and a fluid is allowed to flow along the groove, so that the direction in which the fluid travels is changed.

4. The mixture injection port according to claim 2,
wherein the circulating-plate portion is provided with a holding
portion on its back face that is engaged with the narrow tube portion and
5 holds the circulating portion inside the channel tube.
5. The mixture injection port according to claim 4,
wherein a groove for guiding a fluid is formed in the back face of the
circulating-plate portion and the holding portion.
- 10 6. The mixture injection port according to claim 2,
wherein the circulating portion is provided with an edge portion that
protrudes toward the septum in an edge of the circulating-plate portion.
- 15 7. The mixture injection port according to claim 6,
wherein a groove for guiding a fluid is formed on an inner
circumferential surface and an outer circumferential surface of the edge
portion.
- 20 8. A mixture injection port in which one end of a channel tube is covered by
a septum provided with a slit into which a tube member is inserted,
wherein a fluid-stagnation-preventing portion is provided for filling
a gap region generated between an inner wall of an inner cavity formed
inside the channel tube and the septum that is deformed to the inner cavity
25 side by insertion of the tube member, when the tube member is inserted into
the slit.
9. The mixture injection port according to claim 8,

wherein the fluid-stagnation-preventing portion is formed integrally with the septum.

10. The mixture injection port according to claim 9,

5 wherein the fluid-stagnation-preventing portion is a rib provided such that at least one portion of its outer circumference and its top is in contact with the inner wall throughout its entire circumference.

11. The mixture injection port according to claim 8,

10 wherein the fluid-stagnation-preventing portion is provided so as to protrude from the inner wall and be in contact with the septum.

12. The mixture injection port according to claim 8,

 wherein the inner cavity is provided with a circulating portion for
15 circulating a fluid injected from the inserted tube member or a fluid flowing to the tube member side to the septum side and then guiding the fluid to a downstream side of the channel tube or a top portion of the tube member.

13. The mixture injection port according to claim 12,

20 wherein the channel tube is provided with a narrow tube portion having a smaller width than that of the inner cavity and that is in communication from the inner cavity to the other end of the channel tube, and

 the circulating portion has a circulating-plate portion that is
25 mounted on a step generated between the inner cavity and the narrow tube portion.

14. The mixture injection port according to claim 13,

wherein the circulating portion is provided with an edge portion that protrudes toward the septum in an edge of the circulating-plate portion.

15. A mixture injection port in which one end of a channel tube is covered
5 by a septum provided with a slit into which a tube member is inserted,

wherein the channel tube is provided with a circulating path for circulating a fluid injected from the inserted tube member or a fluid flowing to the tube member side to the septum side and then guiding the fluid to a downstream side of the channel tube or a top portion of the tube member.

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16. The mixture injection port according to claim 15,

wherein the circulating path is a channel formed on a surface of a circulating member provided in an inner cavity of the channel tube and is a fluid channel for guiding a fluid along the surface of the circulating member
15 so as to pass through a region near the septum.

17. A mixture injection port comprising:

a channel tube unit forming a fluid channel in which an inner cavity and a narrow tube portion having a smaller width than that of the inner
20 cavity are provided in communication with each other;

a septum that is provided with a slit into which a tube member is inserted and that covers an opening on the inner cavity side of the channel tube unit;

a circulating portion provided with a circulating-plate portion that is
25 mounted on a step generated between the inner cavity and the narrow tube portion, and with an edge portion that protrudes toward the septum in an edge of the circulating-plate portion; and

a cap for fixing the septum to the channel tube unit,

wherein an annular rib provided such that its outer circumference side or its top is in contact with an inner wall of the inner cavity is provided in the septum on the inner cavity side by integral formation with the septum.

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18. The mixture injection port according to claim 17,

wherein the circulating-plate portion is a substantially disk-shaped plate member, and its diameter is substantially equal to the inner diameter of the inner cavity.

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19. The mixture injection port according to claim 17,

wherein a protrusion is formed on a surface of the slit on the inner cavity side in the septum.

15 20. A method for transferring a fluid to/from a body using a mixture injection port in which one end of a channel tube is covered by a septum provided with a slit into which a tube member is inserted,

wherein the mixture injection port according to claim 1 or 15 is used.

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